Concept of Use for the

3IT – Innovation Center for Immersive Imaging Technologies

Preamble

The topic of immersion and the technologies it requires have increasingly gained importance in recent years. This is expressed to a large extent by the current high level of interest in virtual reality (VR) and augmented reality (AR). Rapid progress in the entertainment, media, and communication industry have made this development possible, for instance through high-resolution sensors, displays with a larger color range and improved color dynamics, more powerful processors, greater storage densities, and also continuously increasing transmission bandwidths to and from devices. However, this trend is by no means limited to the entertainment sector. Medicine and industry are increasingly included in this development as well. In particular, the aforementioned technologies include all types of 3D image and video processing, computer vision and 3D visualization, and related basic technologies such as depth-based image processing or machine learning.

The goal of the Innovation Center for Immersive Imaging Technologies (referred to as "3IT" in the following) is to pursue the further development of the aforementioned technologies and to jointly promote their application in the relevant markets (such as entertainment, medicine, industry, and automotive) by realizing synergies.

In its research projects, studies, Working Groups and other activities, the 3IT elucidates issues from all the sectors mentioned above. The 3IT will be used by its Partners as a:

- R&D lab for projects, innovations and standards
- Development platform and testbed
- Showroom for prototypes and products
- Showroom for applications and infrastructures
- Communication platform for providers, users and the general public
- Transfer platform for know-how and professional training
- Marketing instrument for advertising, sales and PR
- Resource pool for experts, know-how and marketing & target group data

I. Organization

The 3IT is established and run by the Fraunhofer Heinrich Hertz Institute (HHI) for Communication Technology. With each Partner of the 3IT, the Fraunhofer HHI enters into a bilateral agreement. The financing of projects, as well as the form of membership and the respective contribution, is regulated through different service packages (bronze, silver, gold or platinum). More details are given below.
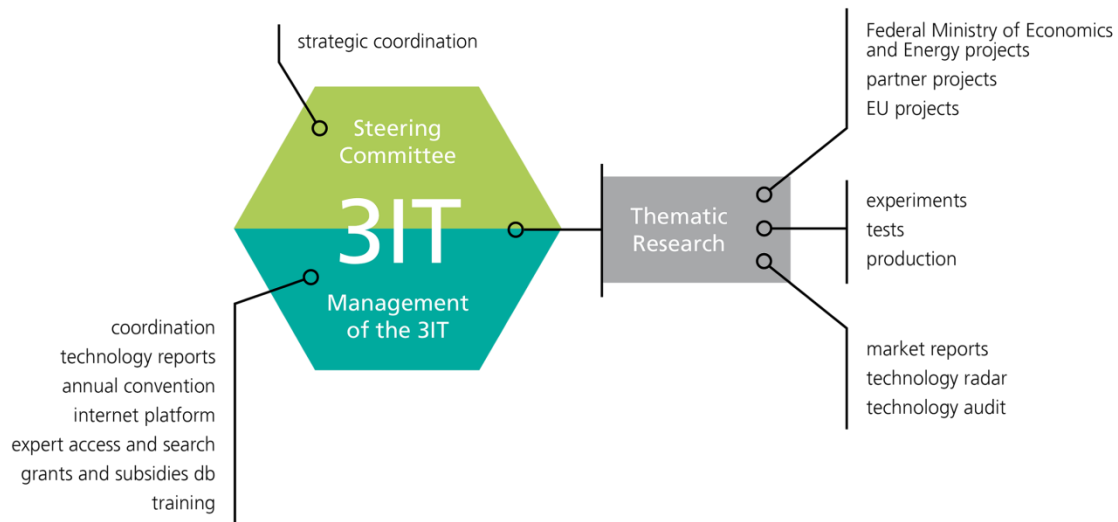
Figure 1: Organizational Structure of the 3IT

The organization of the 3IT is thereby structured as follows:

1. Steering Committee (see fig. 1)

The Steering Committee consists of a maximum of 11 members and is composed as follows:

- One representative of Fraunhofer HHI
- All Platinum Partners
- N Gold Partners (at least 4)
- One elected representative of the Silver Partners
- One elected representative of the Bronze Partners
- N = 11 – (3 + number of platinum partners)

In case that there are more than N Gold Partners, N of them are selected.

In the event that there are more than 4 Platinum Partners, the number of Steering Committee members will increase to the number of Platinum Partners + 7.

Each year, the Steering Committee will appoint a CHAIRMAN from its members.
The representatives of the Silver and Bronze Partners will be elected once a year. All 3IT Partners have one vote each and can appoint themselves for election.

2.   Management (see fig. 1)

The management of the 3IT consists of the Executive Manager who is appointed by Fraunhofer HHI as well as further employees of the Fraunhofer HHI. The Management is responsible for the operation of the 3IT and its technical installations for the organization of events. Further, it is accountable for the preparation, moderation and follow-up of the Steering Committee meetings, and for the execution of services which the partners of the 3IT have agreed on in their Partnership Agreements.

II. Financing

The 3IT is financed by the respective partner contribution. To this end, Fraunhofer HHI concludes a bilateral agreement with each partner. The respective agreement regulates the amount of the annual contribution and the duration of the partnership as well as the services to which the Partner is authorized to benefit from. Apart from this, no further financial obligations arise for the Partners.

III. Partnership Program

Each partner of the 3IT enters into a bilateral agreement with Fraunhofer HHI. The respective agreement fully specifies the rights of each partner and the services provided by Fraunhofer HHI. Memberships of the 3IT – which are divided into the categories bronze, silver, gold, and platinum – are possible in the following way:

	Bronze	Silver	Gold	Platinum
Membership Subscription	€ 3,000 p.a.	€ 6,000 p.a.	€ 10,000 p.a.	€ > 12,000 p.a. (special arrangements & according fee to be negotiated)
Minimum Duration	One year	2 years	2 years	2 years
Presentation in the 3IT with logo, brochures & on the 3IT website	✓	✓	✓	✓ in the most prominent places
Participation in Working Groups	✓	✓	✓	✓
Free of charge participation in all internal events of the 3IT (except "closed" events of other partners)	✓	✓	✓	✓
Provision of representative rooms in the 3IT for own events in connection with 3IT e.g. PR events, training programs etc. after prior consultation (excluding catering costs) *	Limited to only ONCE per year of contribution	✓	✓	✓
Option of exhibiting own demonstrators	X	One in the 3IT exhibition area	More than one in prominent places	More than one in the most prominent places; from several industry sectors

Having a **representative included in the Steering Committee** and thus contribute in shaping the strategy of the 3IT	**By election only	**By election only	✓	✓
Being named as a member of the Steering Committee in any publication (e.g. brochures, 3IT web page etc.)	✓	✓	✓	✓ permanently

* Additional use of existing technical equipment may require a separate agreement and fees may apply, except for Platinum Partnerships.

** The representatives of the Silver and Bronze Partners will be elected once a year. All 3IT Partners have one vote each and can appoint themselves for election.

IV. Forms of Use of the 3IT

The 3IT offers its partners a wide range of uses. Although these are very diverse, four main points of usage can be identified:

- Organization of collaborative projects
- Testing of developments in connection with Partners and/or by using the technical infrastructure of the 3IT
- Internal and external communication of the 3IT mission
- Using the 3IT as a showroom and event venue

Such a wide variety of possibilities to use the 3IT requires a flexible concept, i.e. provision should be made for the most flexible use of the 3IT's available space.

Moreover, the 3IT is a platform that enables the exchange of knowledge and collaborative research. The 3IT thereby offers the following services:

1. Generation of Technological Knowledge

Technological knowledge is provided through the active support of projects and research groups with web-based collaboration and innovation tools.

2. Enrichment of Technological Knowledge

Creating an additional value through bundling and target-group-specific processing and synthesizing: e.g. patent analysis; level of technological maturity; trend reports and studies; research findings.
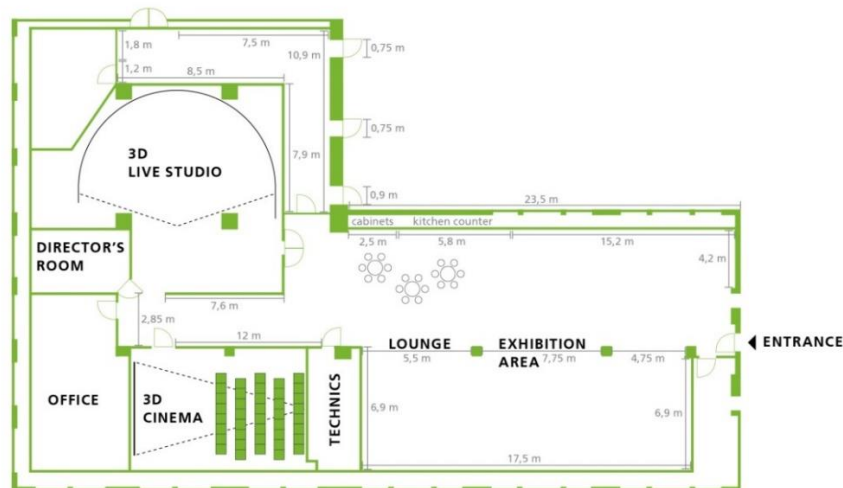
3. Networking Technological Knowledge

Due to the large number of partners, the 3IT forms a network that provides know-how and content.

4. Retrieving Technological Knowledge

The 3IT and its network enable an active and passive information retrieval.

V. Spatial Plan of the 3IT

Figure 2: Division of space of the 3IT

The flexible structure of the 3IT allows a wide range of possible uses.

In total, the 3IT has around 600 m^2 of space available, which allows for the following possibilities:

- A preponderantly flexible form of usage secures the mid- and long-term development and theme-based extensions of the Center
- Fixed functions are:
    - A flexible presentation/exhibition space
    - A utility room for storage of presentation equipment
    - A green screen studio, 3D capable
    - A 3D movie theatre
    - A meeting area
- Part of the area is freely usable for:
    - Temporary exhibitions of individual partner presentations (eventually with corporate branding)
    - Temporary dynamic presentations of specific themes in the form of installations etc.

Facilities of the 3IT:

The facilities of the 3IT offer various usage possibilities. Whereby the premises can be described as follows:

The 3D Live Studio

Equipped with state-of-the-art facilities, partially using Partner's technologies, the studio offers an experimental environment for any kind of TV/film production. In addition, this area can be used for live events such as talk shows or music events. Visitors may experience 3D production live in action.

- approximately 110 m^2
- Green screen with channeling and floor for virtual content
- 18 LED spots
- 12 LED spots red, green, blue, white for mixing colors
- 50 LED panel lights

The 3D Director's Room

In the director's rooms, the production switcher Kahuna 360 by Snell with features to support image processing, live production, automation, workflow control and distribution within the 3D environment can be used.

The 3D Cinema

No matter whether 3D reference material is presented, 3D movies are screened and discussed – it is all possible in the 3D Cinema. In addition, this multi-functional space can be used for workshops and training sessions, of course also in 2D. The available technology includes:

- Projector Christie CP 2210 in combination with Doremi
- IMB (Integrated Media Block) server – playback of 3D High Frame Rate up to 60 fps possible
- Z-Screen by Real D + silver screen
- Dolby Surround System
- 35 seats
- 2D projector by Projection Design for presentations such as .ppt etc.

The Lounge

The Lounge is a meeting spot for experts and users from different sectors such as industry, research, and government. It is a venue for events and successful networking.

The Showroom

In the Showroom has a lot to offer. Users can experience

- Approximately 300 m^2 exhibition area
- The whole world of immersive media and 3D technologies in different application areas
- Exhibition corners dedicated to the specific themes (e.g. autostereoscopic displays, live UHD transmission, medical 3D applications etc.)

VI. The 3IT in the Center of Innovative Research

The 3IT is located at the Salzufer 6 directly opposite Fraunhofer HHI (see Fig. 3) – in the heart of Berlin and in center of innovation. Salzufer 6 is part of the Charlottenburg Campus situated close to the Technical University of Berlin, the Berlin University of the Arts and Deutsche Telekom's T-Labs.

Figure 3: Spatial Plan of the 4th floor of Salzufer 6 with the 3IT, the CINIQ and HHI-VIT
Figure 4: Location of the 3IT

The Fraunhofer HHI building is also home to the TiME Lab which – with its stereo projection in 7K x 2K resolution and its IOSONO wave field synthesis audio system – represents a one-of-a-kind technical installation whose capabilities can also be used by the 3IT's Partners. What's more, the HHI auditorium (seating approx. 130) and its meeting rooms may also be exploited for events of the 3IT.

At Salzufer 6 itself, the 3IT is located directly opposite to the CINIQ Center and next to the Fraunhofer HHI's Image Processing department (see fig. 4) which employs around 80 people.

The *CINIQ – Center for Data and Information Intelligence* – is a sister platform just next to the 3IT. Its focus lies on topics such as Big Data, Smart Data, and Cloud Applications. Both Centers are operated by the same Management and can, therefore, be combined on request to host larger events with > 100 attendees.